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Draft

Pancaked Rates Are a Problem in the Pacific Northwest; They Are an Issue of Efficiency

Note: This draft discussion paper was prepared by BPA, Pacificorp, and Idaho Power Company; PNGC provided helpful comments.

A. Background.

The "Pancaked Rates" paper (the Paper) dated July 30, 2003 argues that pancaking is an issue of equity,[1] not efficiency.[2] It argues that eliminating pancaking mostly results in cost-shifts, and to support this position, describes a method of eliminating pancaking by averaging all transmission costs together in a single, RTO West wide "postage stamp" rate.

The Paper argues that, since BPA's transmission rates are below average, a cost shift of about $80 million annually will occur from other consumers to BPA's customers by adopting a postage stamp rate. It suggests that an alternative pricing proposal, "segmentation," might be used to address pancaking issues.

The Paper acknowledges there is a likely benefit from eliminating pancaking and cites the 2001 Tabors Caramanis study as estimating the reduction in net western generation cost from forming RTO West to be about $250 million a year.[3] According to the Paper, $250 million "represents only one percent of the total cost of generation in the WECC." Essentially, the argument is that saving $250 million a year is not worth the effort because it is too small a percentage of the total cost of generation.

This paper addresses those arguments.

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[1] "Equity," as the term is used in the July 30 paper, refers to situations where there is a shifting of the benefits of low cost generation from one entity to another in a zero sum game, meaning there is no change in resource operation, but there is a change in who benefits. BPA rate case issues often have this "zero sum game" quality.

[2] "Efficiency," as the term is used in the Jul 30 paper, refers to situations where low cost generation that would otherwise sits idle is used to displace higher cost generation, which does not operate as a consequence of the displacement.

[3] The table referenced by the Paper contains the figure of $239 million. The differences are not important for purposes of this paper. A discussion of the numbers in the Tabors Caramanis study is beyond the scope of this paper. The study is posted on the RTO West website.

The terms "pancaked rates" and "pancaking" arose in reference to payment of multiple transmission rates, each based on recovery of embedded (i.e., fixed) costs, for a transaction involving multiple transmission providers. Fundamentally, the problem arises from the practice of recovering embedded costs on a transaction-by-transaction basis, a practice that, despite having no relation to the incremental cost of using the transmission system, imposes marginal transaction costs that are an impediment to efficient dispatch of available generation. Stacking one such charge on top of another exacerbates the problem.

B. Summary

This rebuttal paper makes four points. First, pancaking is a problem in the Pacific Northwest that results in reduced efficiency. In other words, sometimes the Pacific Northwest operates higher cost resources when lower cost resources are available, but not run as a result of transmission costs (i.e., pancaking). Another aspect of pancaking, "headache cost" associated with arranging transactions with multiple control areas, also affects efficiency.

Second, cost shifts from one set of customers to another can be reduced to an acceptable level by a "company rate" approach under which current customers would continue to pay transmission rates to their current transmission provider comparable to that which they pay today. BPA's customers would continue to pay a BPA transmission rate based on BPA's net transmission costs. The same would be true for the customers of other transmission providers.

Third, pancaked rates have the potential for distorting investment decisions in generation by inappropriately favoring local, sometimes higher cost generation over distant, but cheaper generation. This is because pancaked rates collect historical, embedded costs; they do not collect the incremental costs of adding new resources, costs that should be the basis of a price signal to new resources. This appears to be contributing to the fact that the Pacific Northwest is becoming increasingly dependent on a single fuel type—natural gas—for its new resources. This is increasing system price risk, reflected in natural gas price volatility.

Finally, the segmentation proposal in the Paper seems to be some kind of direct assignment scheme that likely creates more problems than it cures. This is a radical alternative—offered without elaboration—that would require a much broader treatment before it could be taken seriously as a solution to pancaking.

C. Defining Pancaking

"Pancaking" in the context of this paper refers to the combination of three effects: First, using the embedded cost of the existing system as a basis for pricing marginal short-term transactions (a cost recovery method that is not related to the incremental cost of using the transmission system); second, compounding this effect by charging multiple embedded cost transmission rates for a single transaction that crosses multiple

transmission systems; and third, the "headache cost" or "transactional friction" associated with arranging transactions across multiple control areas.

Transactional friction includes dealing with: multiple OASIS sites and requests, different scheduling practices from control area to control area, multiple scheduling charges in addition to embedded charges, pancaked ancillary charges, multiple credit checks, different methods of calculating ATC, and the general headache of having to deal with different "rules" from control area to control area. At times the effort of having to deal with the pancaking issues causes BPA and other buyers to pass on otherwise economic short-term transactions to the detriment of its customers.[4]

D. Illustrative Examples

The Paper presents an unrealistic example that suggests pancaking is generally harmless.[5] The example involves a $5 incremental resource selling into a $30 market, in which case the Paper argues the buyer could be "forced to pay" up to $25 with no impact on resource

[4] BPA is adversely affected by pancaked rates from time to time because it must pay a pancaked charge to reach regional markets outside the BPA grid with surplus power sales when doing so would increase revenues. These opportunity costs are potentially significant. Further, BPA is adversely affected when it must cross multiple control areas to manage redispatch or to import or export power. These costs are modest, but not zero. They appear to be getting worse every year. Therefore, all of BPA's customers that buy power from BPA are adversely affected by pancaked rates. Revenues from the sale of surplus power are somewhat less than they otherwise would be. Purchase power costs are somewhat higher than they otherwise would be in the absence of pancaking. The reason is simple—removing pancaking gives sellers and buyers more choices when they transact business.

[5] Removing pancaking allows buyers access to lower cost generation, thereby expanding the market for low cost generators. Eliminating pancaking would remove the competitive advantage that high cost, but local generators enjoy under a pancaking model.

As a practical matter, most low cost thermal generators in the Northwest (usually coal) have high plant factors, meaning they run in spite of of transmission pricing policies. However, other (marginal) thermal generators have more modest plant factors, suggesting they could improve efficiency by operating additional hours when they represent the lowest cost provider.

The examples presented in the Paper illustrate the obvious: the higher the price differential between alternatives, the more a buyer can afford to pay for pancaked charges. They further suggest that since pancaked rates amount to a small percentage of delivered costs, it's OK to continue to collect pancaked charges—because the buyers can afford it. They do not acknowledge that the buyers end up paying more for energy.

operation.[6] This merely demonstrates that an example can be presented in which pancaked rates do not affect how generation is dispatched, but for every example demonstrating that pancaked rates do not affect market efficiency; others can be cited in which they do.

Today's wholesale markets are much more efficient than the example indicates. A $30 market is a result of supply and demand at or near $30, and a $5 resource would usually run in such a market unless there *were* charges approaching $25 to get the resource to the market. A more realistic assessment of the impact of pancaked rates on market transactions demonstrates that there can clearly be significant—if not "destructive"—impacts associated with pancaked rates.

As an example of a general scenario, consider a situation where a load serving entity must choose between two options to serve its load. The first is a generator owned by the load service entity with an incremental cost of $30 per megawatt-hour. A cheaper source is available for purchase at $24 (this implies a marginal cost of generation below $24 to provide a margin to the seller). There is no congestion associated with either transaction.

In order to import power from the cheaper source, the load service entity must pay for transmission across two intervening control areas, each of which charges a transmission fee of $3.50. Thus, the load service entity's total cost of using the cheaper generator would be the cost of generation plus the pancaked rates, a total of $31. The load service entity would use the cheapest source of power for its consumers and would meet load using the $30 generator. At the same time generation cheaper than $24 would sit idle. And, pertinent to the question of efficiency, available transmission that could provide mutual benefits and lower costs would go unused.

Assertions in the Paper notwithstanding, margins in western wholesale markets are often not wide enough to cover the cost of pancaked rates. Fuel-constrained Pacific Northwest resources—including a substantial amount of hydro generation—characterized in the Paper as relatively cheap, are dispatched on an opportunity cost basis and regularly compete on the margin. The differences in prices at various western market hubs are solely a function of the cost (and/or availability) of transmission—much of which is represented by pancaked embedded rates.[7]

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[6] The examples cited by the authors suggest that wholesale prices do not change as a result of operating lower cost resources. It may be true that under some circumstances, West Coast energy prices do not change much with small incremental changes in the costs of production, but prices in short term markets are inevitably linked to the marginal cost of generation. These prices change with the cost of marginal resources, i.e., with the cost avoided by finding an alternative supply. It is exactly these resource choices made at the margin that are blocked or impeded by pancaked rates when incremental purchases are made.

[7] Some of the effects of pancaking can be avoided by holders of long-term transmission rights—to the extent these rights allow the holder to move power from the marginal resource to load. That is not always the case.

A specific example of the adverse effects of pancaked rates was provided by the Alberta Department of Energy. On April 8, 2003 the Alberta Department of Energy along with TransCanada and Northern Lights gave a presentation at a Northwest Power Planning Council meeting regarding cogeneration in Alberta's Oil Sands. Part of their presentation dealt with the problems they currently face in using the existing AC grid to deliver energy to the U.S. Northwest. One major obstacle, pancaking of rates, results in $10 energy produced at the Tar Sands being uneconomical by time it reaches the U.S. Northwest.

They provided an example of pancaked tariffs they face: Alberta--$12.00; BC Hydro--$6.50; BPA--$2.25. Total pancaked charges: $20.75. Eliminating BC Hydro's and BPA's charges would reduce transportation costs by $8.75, a reduction in delivered cost of about 28%. Because of pancaking, these projects are either not developed, or, once developed, do not run as frequently as they could to displace higher cost generation.

There is little, if any, incremental cost to the transmission system of operating lower cost, more distant generation.[8] Thus, imposition of pancaked rates to recover embedded transmission costs is an artificial and unnecessary impediment to the efficient operation of wholesale markets.

As the examples show, pancaking can and does reduce the efficiency of the system. More expensive resources are used to serve load, thereby increasing the cost to consumers. The next section will deal with the issue of eliminating pancaking without causing cost-shifts.

E. Alleged Cost Shifts from Eliminating Pancaking Can be Avoided

By presenting only one method, the Paper implies that to eliminate pancaking all transmission charges must be averaged into a single, postage stamp rate: "If the elimination of pancaking is accomplished by simply averaging all the embedded cost rates of the Filing Utilities, there would be an increase in BPA's average embedded cost of wheeling by about one third."

The Paper's logic focuses on what happens to BPA's customers under a postage stamp rate approach. It contends that, since BPA's current rates are lower than the average postage stamp rates, adopting a postage stamp rate would result in "a shift in costs from the customers of regional IOUs, and from Canadian ratepayers, to the customers of BPA of about $80 million annually." From this example, the Paper concludes that eliminating pancaking always results in substantial cost shifts. In the authors' words: "As a result,

[8] This paper does not address the subject of losses. Treatment of losses, a difficult subject in its own right, is beyond the scope of this paper. Suffice it to say that losses in a broadly interconnected system are not simply a direct function of distance because of displacement and counter flows effects.

any proposal to eliminate rate pancaking will simply cause cost shifts without reducing the overall cost of producing and delivering electricity to consumers."

The Paper's hypothesis, that eliminating pancaking inevitably results in large cost shifts, can be tested. Suppose instead of adopting postage stamp rates, we adopted license plate rates, aka "company rates." Under a company rate approach, each company, including BPA, would set transmission rates for its native load (in BPA's case, its control area and power transfer customers) according to its revenue requirement, taking into account transmission revenues received from other entities and transmission charges paid to other entities for the use of their systems. This would allow transmission rates to be set at a level comparable to what they are today.

If every consumer pays a portion of the fixed costs of the system comparable to what they pay today, no appreciable cost shift occurs. Under a company rate approach, every consumer would pay a charge comparable to what they pay today—but their load service entity would get access to the entire system.

In fact, the company rate proposal contained in Stage 2 of the RTO West proposal was designed to achieve the objective of minimizing cost shifts from eliminating pancaked rates. The proposal is a practical approach to eliminating pancaked transmission rates while minimizing cost shifts. This approach to minimizing cost shifts has been used by other RTOs and ISOs across the United States.[9]

The Paper suggests that eliminating pancaking will not, in and of itself, result in "the economically efficient result." Rather, it argues that the "economically efficient result" can only be achieved by also adopting a system of location prices to manage congestion:

> "There is a legitimate question whether the current pricing system appropriately reflects the marginal cost of transmission, but it is not the case that simply eliminating pancaked rates will automatically yield the economically efficient result, unless a new system of locational congestion prices is imposed simultaneously."

We agree that adopting some form locational pricing would improve the efficiency of Northwest generation. We also agree that eliminating pancaking and adopting locational prices is a more complete solution to a variety of problems within the Pacific Northwest. However, we disagree that benefits associated with elimination of pancaking can only be achieved in conjunction with a locational pricing system.

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[9] Company rate approach, or license plate pricing as it is often called, has been widely used and proposed for RTOs to mitigate cost shifting. First applied in PJM, it was also used in California for fixed cost collection and has proven to be a workable, practical approach. PJM is using license plate pricing to expand to PJM West and to add Commonwealth Edison to its system. It is the basis of a proposal to eliminate pancaking between the Southwest Power Pool and the Mid-West Independent System Operator [see http://www.spp.org/Publications/SPP_MISO_Release_110402.pdf].

F. Pancaking Adversely Affects the Type and Location of Long-term Investments

The Paper suggests that eliminating pancaking[10] allows new resource developers to escape the necessary costs of expanding the transmission system to accommodate new generation: "Economic efficiency suggests that the region's transmission providers should not be making the choice between these alternative generation models by allowing the shipment of power that does not collect full expansion costs." (emphasis in original) It further suggests that eliminating rate pancaking may "shield" new generation from the incremental cost of integrating new resources.

Eliminating pancaking does not result in allowing new generation to escape the incremental costs of adding new generation. Pancaking refers to the collection of historical, embedded transmission costs, not incremental expansion costs of new generation. These are different concepts and different costs.

There is an issue with respect to who should pay the incremental costs of expanding the system to accommodate new generation. Under current practices, new generation must pay for interconnection costs, potentially including main grid reinforcement or expansion costs necessary to integrate their resource into the system. FERC has addressed this issue in its recent interconnection order. But the proper social policy for assigning the costs of adding new generation to the system has nothing to do with pancaking of historical, embedded transmission costs.

Further, the Paper implies that transmission policy should be neutral with respect to resource choice: "Regional policy should not attempt to determine that one type of cost and risk should be socialized (through the elimination of pancaked transmission rates) while the other should not (through the socialization of incremental pipeline costs)." However, pancaked rates, because they have nothing to do with the cost of expansion, create arbitrary and unwarranted barriers to some new resources while benefiting others. Pancaking favors one type of resource—local natural gas-fired projects—even when lower cost, distant alternatives (e.g., wind) may be available.

From a long-term investment perspective, pancaking seems to be biasing decisions toward constructing local, natural gas-fired generation even when lower cost alternatives may be available without constructing significant, additional transmission. These pricing practices tend to favor pipeline construction over transmission investment in order to

[10] The Paper suggests the goal of removing pancaking is to adopt pricing policies that favor the development of wind or coal resources: "Some observers believe that the Northwest is being driven to a pipeline-expansion model to support new gas-fired CTs placed close to load, and would prefer a transmission-expansion model to support new wind- and coal-fired plants far from load." This is not the case. As discussed in the text, the current practice of recovering embedded costs from incremental transactions seems to distort resource decisions. Pancaking these embedded costs as transactions cross multiple control areas compounds the problem.

avoid pancaked embedded transmission costs. From a portfolio management perspective, encouraging the construction of a single resource type seems to be increasing system risk by increasing the percentage of regional resources that rely on a single, volatile fuel supply.

G. Segmented, Directly Assigned Charges Seem To Be an Unrealistic Alternative

The Paper suggests an alternative pricing methodology called "segmenting" as an alternative to eliminating pancaking: "Though the problem appears to be pancaked rates, the real problem may be poor rate design. However, the solution to this problem is not necessarily the elimination of pancaked rates, when a change in rate design such as segmentation may correct the problem."

We agree that the problem is poor rate design and reform is in order. Segmenting, although not explained in detail, seems to be a method of directly assigning transmission costs to reflect use of the transmission system on a transaction-by-transaction basis. This approach seems to be an effort address equitable assignment of historic, embedded costs. But, as already noted in this paper, assigning embedded costs to incremental transactions is the fundamental problem that assigning segmented, but embedded costs, does not address.

Even as an allocation technique, direct assignment faces substantial problems. It would be difficult if not impossible to develop a comprehensive methodology of directly assigning system transmission costs on a transaction-by-transaction basis.

The idea of associating particular resources with particular loads has been rejected by regional policy makers for many decades. It has long been the policy of BPA and the federal government to bring electricity to our rural communities at an affordable price.[11] Direct assignment of transmission costs is at odds with this long-standing public policy, in part because even relatively small uses of the main grid transmission system may translate into high transmission rates when spread over small, rural loads.

H. Conclusion

Rate pancaking is a problem that results in reduced efficiency in the use of available generation. It increases costs to consumers, including those of BPA's power customers. It reduces the revenues from export sales and increases the costs of imports to the detriment of regional consumers, including those dependent on BPA power.

[11] State commissions in setting prices for investor owned companies generally follow the same policy for retail rates. While a few examples of location-specific rates exist to recover the costs of a specific investment, most rates do not distinguish between urban and rural loads.

Rate pancaking adversely affects the type and location of new generation because these decisions are affected by pancaking of embedded costs in addition to the incremental costs of adding new generation to the system.

Finally, eliminating pancaking can be done without causing a cost shift through the adopting of company rates. This was one of the purposes for proposing company rates.